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In the Application of BARCHFELD et al.

Confirmation No. 8826

Serial No.: 09/044,696

Art Unit: 1645

Filed March 18, 1998

Examiner: DEVI, SARVAMANGALA J N

Title: DETOXIFIED MUTANTS OF BACTERIAL ADP-RIBOSYLATING TOXINS AS PARENTERAL ADJUVANTS

U.S. PATENT DOCUMENTS

Exam. Init.	Ref. Desig.	Document No.	Date	Name	Class	Sub Class	Filing Date
SD	A-1	4,328,209	May 4, 1982	Finkelstein et al.	424	92	
SD	A-2	4,428,931	January 31, 1984	Tolman et al.	424	87	
SD	A-3	4,666,837	May 19, 1987	Harford et al.	435	68	
SD	A-4	4,892,827	January 19, 1990	Pastan et al.	435	193	
SD	A-5	4,925,792	May 15, 1990	Rappuoli	435	69.1	
SD	A-6	4,935,364	June 19, 1990	Kaper et al.	435	172.3	
SD	A-7	5,032,398	July 16, 1991	Kaslow	424	92	
SD	A-8	5,085,862	February 4, 1992	Klein et al.	424	92	
SD	A-9	5,182,109	January 1993	Tamura et al.	424	92	
SD	A-10	5,221,618	June 1993	Klein et al.	435	69.1	
SD	A-11	5,244,657	September 1993	Klein et al.	424	88	
SD	A-12	5,332,583	July 26, 1994	Klein et al.	424	190.1	
SD	A-13	5,358,868	October 25, 1994	Klein et al.	435	243	
SD	A-14	5,427,788	June 1995	Rappouli et al.	424	190.1	
SD	A-15	5,433,945	July 18, 1995	Klein et al.	424	185.1	
SD	A-16	5,601,827	February 11, 1997	Collier et al.	424	190.1	
SD	A-17	5,668,255	September 16, 1997	Murphy	530	350	
SD	A-18	5,747,028	May 5, 1998	Calderwood et al.	424	93.2	
SD	A-19	5,770,203	June 23, 1998	Burnette et al.	424	190.1	
SD	A-20	5,773,600	June 30, 1998	Burnette	536	23.7	

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SD	A-21	5,785,971	July 28, 1998	Rappouli et al.	424	190.1	
SD	A-22	5,786,189	July 28, 1998	Locht et al.	435	172.3	
SD	A-23	5,856,122	January 5, 1999	Read et al.	435	69.1	
SD	A-24	5,874,088	February 23, 1999	Mekalanos	424	200.1	
SD	A-25	5,874,287	February 23, 1999	Burnette et al.	435	252.3	
SD	A-26	5,882,653	March 16, 1999	Kaper et al.	424	261.1	
SD	A-27	5,889,172	March 30, 1999	Pizza et al.	536	23.7	
SD	A-28	5,925,546	July 20, 1999	Pizza et al.	435	69.3	
SD	A-29	5,942,418	August 24, 1999	Loosmore et al.	435	69.1	
SD	A-30	5,961,970	October 5, 1999	Lowell et al.	424	93.1	
SD	A-31	5,965,385	October 12, 1999	Read et al.	435	69.1	
SD	A-32	5,977,304	November 2, 1999	Read et al.	530	350	
SD	A-33	5,985,284	November 16, 1999	Lowell	424	234.1	
	A-34	6,019,982	February 1, 2000	Clements	424	234.1	
	A-35	6,030,624	February 29, 2000	Russell et al.	424	200.1	
	A-36	6,033,673	March 7, 2000	Clements	424	236.1	
	A-37	6,019,982	February 1, 2000	Clements	424	236.1	
SD	A-38	6,129,923	October 1999	Doidge et al.	424	234.1	

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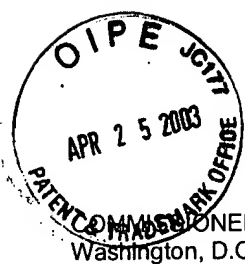
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Exam. Init.	Ref. Desig.	Document No.	Publication Date	Country or Patent Office	Class	Sub Class	Translation YES	Translation NO
57	B-1	WO 90/14837	December 13, 1990	PCT				
	B-2	WO 92/22326	December 23, 1992	PCT				
	B-3	WO 94/01533	January 20, 1994	PCT				
	B-4	WO 95/03824	February 9, 1995	PCT				
	B-5	WO 95/09649	April 13, 1995	PCT				
	B-6	WO 00/18434	April 6, 2000	PCT				
	B-7	EP 0 222 835B1	September 28, 1994	EPO				
	B-8	EP 0 396 964	September 6, 1999	EPO				
	B-9	EP 0 462 534	December 27, 1991	EPO				
57	B-10	EP 0 688 868	December 27, 1995	EPO				

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)

Exam. Init.	Ref. Desig.	Description
57	C-1	Anderson et al., "Immunogens Consisting of Oligosaccharides from the Capsule of <i>Haemophilus Influenzae</i> Type b Coupled to Diphtheria Toxoid or the Toxin Protein CRM197," <i>J. Clin. Invest.</i> 76:52-59 (1985)

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Exam. Init.	Ref. Desig.	Description
SD	C-2	Anderson, "Antibody Responses to haemophiles Influenzae Type b and Diptheria Toxin Induced by Conjugates of Oligosaccharides of the Type b Capsule with the Nontoxic Protein CRM 197," <i>Inf. & Immun.</i> <u>39</u> (1):233-238 (1983)
	C-3	Bartley et al., "Pertusis Holotoxoid Formed <i>in vitro</i> with a Genetically Deactivated S1 Subunit," <i>PNAS USA</i> <u>86</u> :8353-8357 (1989)
	C-4	Bennett et al., "A Comparison of Commerically Available Adjuvants for Use in Research," <i>J. Immunol. Methods</i> <u>153</u> :31-40 (1992)
	C-6	Black et al., "Construction and Characterizations of Bordetella pertussis Toxin Mutants," <i>Infection & Immunity</i> <u>55</u> (10):2465-2470 (1987)
	C-7	Boslego et al., "Gonorrhea Vaccines," <i>Vaccines and Immunotherapy</i> Chapter 17, pp 211-223 (1991)
	C-8	Bowie et al., "Deciphering the Message in Protein Sequences: Tolerance to Amino Acid Substitutions," <i>Science</i> <u>247</u> :1306-1310 (1990)
	C-9	Brandtzaeg, "Overview of the Mucosal Immune System," <i>Current Topics Microbiol. & Immunol</i> <u>146</u> :13-25 (1989)
	C-10	Burnette, "AB ₅ ADP-Ribosylating Toxins: Comparative Anatomy and Physiology," <i>Structure</i> <u>2</u> (3):151-158 (1994)
	C-11	Burnette, "Perspectives in Recombinant Pertussis Toxoid Development," <i>Vaccine Research & Developments</i> Chapter 6:143-193 (1992)
	C-12	Burnette, "The Advent of Recombinant Petussis Vaccines," <i>Biotechnol.</i> <u>8</u> :1002-1005 (1990)
	C-13	Carbonetti et al., "Intracellular Delivery of Cytolytic T-Lymphocyte Epitope Peptide by Pertussis Toxin to Major Histocompatibility Complex Class I Without Involvement of the Cytosolic Class I Antigen Processing Pathway," <i>Infection & Immunity</i> <u>67</u> (2):602-607 (1999)
SD	C-14	Czerkinsky, C. et al., "Oral Administration of a Streptococcal Antigen Coupled to Cholera Toxin B Subunit Evokes strong Antibody Responses in Salivary Galnds and Extramucosal Tissues," <i>Infect. & Immun.</i> <u>57</u> :1072-1077 (1989)

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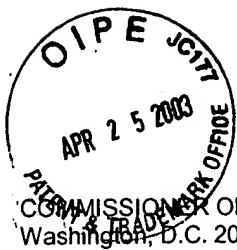
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	C-15	Dallas, W.S. et al, "Cistrons Encoding <i>Escherichia coli</i> Heat-Labile Toxin," <i>J. Bacteriol.</i> <u>139</u> :850-858 (1979)
	C-16	de Haan et al., "Mucosal Immunogenicity of the <i>Escherichia coli</i> Heat-Labile Enterotoxin: Role of the A Subunit," <i>Vaccine</i> <u>14</u> (4):260-266 (1996)
	C-17	Del Giudice & Rappuoli, "Genetically Derived Toxoids for use as Vaccines and Adjuvants," <i>Vaccine</i> <u>17</u> :S44-S52 (1999)
	C-18	Dente et al., "pEMBL: A New Family of Single Stranded Plasmids," <i>Nuc. Acids. Res.</i> <u>11</u> (6):1645-1655 (1983)
	C-19	Dertzbaugh, M.T. et al., "Reduction in Oral Immunogenicity of Cholera Toxin B Subunit by N-terminal Peptide Addition," <i>Infect & Immun.</i> <u>61</u> :384-390 (1993)
	C-20	Dertzbaugh, M.T. et al., "Comparative Effectiveness of the Cholera Toxin B Subunit and Alkaline Phosphatase as Carriers for Oral Vaccines," <i>Infect & Immun.</i> <u>61</u> :48-55 (1993)
	C-21	Dickinson et al., "Dissociation of <i>Escherichia coli</i> heat-labile enterotoxin adjuvanticity from ADP-ribosyltransferase activity," <i>Infect. & Immun.</i> <u>63</u> :1617-1623 (1995)
	C-22	Domenighini et al., "Common features of the NAD-binding and catalytic site of ADP-ribosylating toxins," <i>Mol. Microbiol.</i> <u>14</u> (1):41-50 (1994)
	C-23	Domenighini et al., "Identification of errors among database sequence entries and comparison of correct amino acid sequences for the heat-labile enterotoxins of <i>Escherichia coli</i> and <i>Vibrio cholerae</i> ," <i>Mol. Microbiol.</i> <u>15</u> (6):1165-1167 (1995)
	C-24	Donta, S., "Detection of Heat-Labile <i>Escherichia coli</i> Enterotoxin With the Use of Adrenal Cells in Tissue Culture," <i>Science</i> <u>183</u> :334-336 (1974)
	C-25	Douce et al., "Genetically Detoxified Mutants of Heat-Labile Toxin from <i>Escherichia coli</i> Are able to Act as Oral Adjuvants," <i>Infection and Immunity</i> <u>67</u> (9):4400-4406 (1999)
	C-26	Ellis, Ronald W., "New Technologies for Making Vaccines," Chapter 29 pages 568-575 <i>Vaccines</i> , Plotkin & Mortimer

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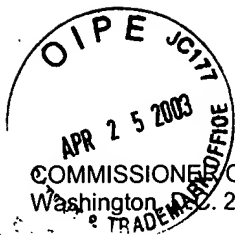
Title: DETOXIFIED MUTANTS OF BACTERIAL ADP-RIBOSYLATING TOXINS AS PARENTERAL ADJUVANTS

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CD	C-27	Giannini et al., "The Amino-Acid Sequence of Two Non-Toxic Mutants of Diphtherin Toxin: CRM45 and CRM197," <i>Nucleic Acid Res.</i> <u>12</u> (10):4063-4069 (1984)
	C-28	Giuliani et al., "Mucosal Adjuvanticity and Immunogenicity of LTR72, a Novel Mutant of <i>Escherichia coli</i> Heat-Labile Enterotoxin with Partial Knockout of ADP-ribosyltransferase Activity," <i>J. Exp. Med.</i> <u>187</u> (7):1123-1132 (1998)
	C-29	Grant, C.C.R., et al., "Effect of Single Amino Acid Changes on the ADP-Ribosyltransferase Activity of <i>Escherichia coli</i> Heat-Labile Toxin Subunit A," 92 nd Gen. Meet. Am. Soc. Microbiol., 1992, Abstract B289, 74
	C-30	Grant et al., "Role of Trypsin-Like Cleavage at Arginine 192 in the Enzymatic and Cytotoxic Activities of <i>Escherichia coli</i> Heat-Labile Enterotoxin," <i>Infection & Immunity</i> <u>62</u> (10):4270-4278 (1994)
	C-31	Gupta et al., "Adjuvants-A Balance Between Toxicity and Adjuvanticity," <i>Vaccines</i> <u>11</u> (13):294-305 (1993)
	C-32	Hagiwar et al., "Effectiveness and Safety of Mutant <i>Escherichia coli</i> Heat-Labile Enterotoxin (LT H44A) as an Adjuvant for Nasal Influenza Vaccine," <i>Vaccine</i> <u>19</u> :2071-2079 (2001)
	C-33	Hartman et al., "Native and Mutant Forms of Cholera Toxin and Heat-Labile Enterotoxin Effectively Enhance Protective Efficacy of Live Attenuated and Heat-Killed <i>Shigella</i> Vaccines," <i>Infect. Immun.</i> <u>67</u> (11):5841-5847 (1999)
	C-34	Häse et al., "Construction and Characterization of Recombinant <i>Vibrio Cholera</i> Strains Producing Inactive Cholera Toxin Analogs," <i>Infection and Immunity</i> <u>62</u> (8):3051-3057 (1994)
	C-35	Hirst et al., "Transient Entry of Enterotoxin Subunits into the Periplasm Occurs During Their Secretion from <i>Vibrio cholera</i> ," <i>J. Bacteriol.</i> <u>169</u> (3):1037-1045 (1987)
	C-36	Holmgren, J. et al., "Oral Immunization Against Cholera," <i>Curr. Top. Microbiol. Immunol.</i> <u>146</u> :197-204 (1988)
58	C-37	Holmgren et al., "Strategies for the Induction of Immune Responses at Mucosal Surfaces Making Use of Cholera Toxin B Subunit as Immunogen, Carrier, and Adjuvant," <i>Am. J. Trop. Med. Hyg.</i> <u>50</u> (5)Suppl.:42-54 (1994)

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SD	C-38	Holmgren et al., "Development of Improved Cholera Vaccine Based on Subunit Toxoid," <i>Nature</i> <u>269</u> :602-604 (1977)
	C-39	Holmgren, "From Cholera Toxin to Subunit Vaccines," <i>Current Science</i> <u>59</u> (13-14):665-669 (1990)
	C-40	Hörnquist, et al., "Cholera Toxin Adjuvant Greatly Promotes Antigen Priming to T Cells," <i>European Journal of Immunology</i> , <u>23</u> (9):2136-2143 (1993) (abstract only)
	C-41	Houghten, "Relative Importance of Position and Individual Amino Acid Residues in Peptide Antigen-Antibody Interactions: Implications in the Mechanism of Antigenic Drift and Antigenic Shift," <i>Vaccines</i> <u>86</u> :21-25 (1986)
	C-42	Jakobsen et al., "Intranasal Immunization with Pneumococcal Polysaccharide Conjugate Vaccines with Nontoxic Mutants of <i>Escherichia coli</i> Heat-Labile Enterotoxins as Adjuvants Protects Mice Against Invasive Pneumococcal Infections," <i>Infection and Immunity</i> <u>67</u> (11):5892-5897 (1998)
	C-43	Jobling et al., "Analysis of the Structure and Function of Cholera Toxin A Subunit," Abstr. Gen. Meet. Am. Soc. Microbiol. <u>91</u> (0):p59, Abstract #B205
	C-44	Kaslow, H.R. et al., "Effects of Site-Directed Mutagenesis on Cholera Toxin A1 Subunit ADP-Ribosyltransferase Activity," 92 nd Gen. Meet. Am. Soc. Microbiol., 1992, Abstract B291, 74
	C-45	Kaslow et al., "Site-Specific Mutagenesis of the Pertussis Toxin S1 Subunit Gene: Effects of Amino Acid Substitutions Involving Residues 50-58," <i>Vaccine Research</i> <u>1</u> (1):47-54 (1992)
	C-46	Lai, C.Y. et al., "Location and Amino Acid Sequence Around ADP-Ribosylation Site in the Cholera Toxin Active Subunit A," <i>Biochem. Biophys. Res. Comm.</i> <u>116</u> (1):341-348 (1983)
	C-47	Langer, "New Methods of Drug Delivery," <i>Science</i> <u>249</u> :1527-1533 (1990)
SD	C-48	Lebacqz-Verheyden, A.M. et al., "Posttranslation Processing of Endogenous and the Baculovirus-Expressed Human Gastrin-Releasing Peptide Precursor," <i>Mol. Cell Biol.</i> <u>8</u> :3129-3135 (1988)

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	C-49	Lebens et al., "Large-Scale Production of <i>Vibrio Cholera</i> Toxin B Subunit for Use in Oral Vaccines," <i>Biotechnol.</i> <u>11</u> :1574-1578 (1993)
	C-50	Lebman et al., "Intraduodenal Application of Cholera Holotoxin Increases the Potential of Clones from Peyer's Patch B Cells of Relevant and Unrelated Specificities to Secrete IgG and IgA," <i>Regional Immun.</i> <u>1</u> :32-40 (1988)
	C-51	Liang, X. et al., "Oral Administration of Cholera Toxin-Sendai Virus Conjugate Potentiates Gut and Respiratory Immunity Against Sendai Virus," <i>J. Immunol.</i> <u>141</u> (5):1495-1501 (1988)
	C-52	Lobet et al., "Effect of Site-Directed Mutagenic Alterations of ADP Ribosyltransferase Activity of the A Subunit of <i>Escherichia coli</i> Heat-Labile Enterotoxin," <i>Infect. & Immun.</i> <u>59</u> :2870-2879 (1991)
	C-53	Loosmore et al., "Engineering of Genetically Detoxified Pertussis Toxin Analogs for Development of a Recombinant Whooping Cough Vaccine," <i>Infect Immun.</i> <u>58</u> (11):3653-3662 (1990) (abstract only)
	C-54	Lycke et al., "The Mechanism of Cholera Toxin Adjuvanticity," <i>Res. Immunol.</i> <u>148</u> :504-520 (1997)
	C-55	Marchetti et al., "Protection Against <i>Helicobacter pylori</i> Infection in Mice by Intragastric Vaccination with <i>H. pylori</i> Antigens is Achieved Using a Non-Toxic Mutant of <i>E. coli</i> Heat-Labile Enterotoxin (LT) as Adjuvant," <i>Vaccine</i> <u>16</u> (1):33-37 (1998)
	C-56	Matousek et al., "Distinct Effects of Recombinant Cholera Toxin B Subunit and Holotoxin on Different Stages of Class II MHC Antigen Processing and Presentation by Macrophages," <i>J. Immunol.</i> <u>156</u> :4137-4145 (1996)
	C-57	McKenzie et al., "Cholera Toxin B Subunit as a Carrier Protein to Stimulate a Mucosal Immune Response," <i>J. Immunol.</i> <u>133</u> (4):1818-1824 (1984)
	C-58	Mekalanos, J.J. et al., "Cholera Toxin Genes," Nucleotide Sequence, Deletion Analysis and Vaccine Development," <i>Nature</i> <u>306</u> :551-557 (1983)
	C-59	Mekalanos, "Production and Purification of Cholera Toxin," <i>Methods Enzymol.</i> <u>165</u> :169-175 (1988)

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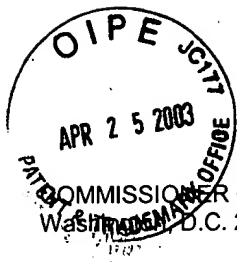
Title: DETOXIFIED MUTANTS OF BACTERIAL ADP-RIBOSYLATING TOXINS AS PARENTERAL ADJUVANTS

Exam. Init.	Ref. Desig.	Description
57	C-60	Okamoto et al., "Effect of Substitution of Glycine for Arginine at Position 146 of the A1 Subunit on Biological Activity of <i>Escherichia coli</i> Heat-Labile Enterotoxin," <i>J. Bacteriol.</i> <u>170</u> (5):2208-2211 (1988)
	C-61	"Oral Cholera Vaccines" <i>The Lancet</i> <u>328</u> (8509):722-723 (1986)
	C-62	Oseasohn, R. "Cholera", In Plotkin SA, Mortimer EA eds. <i>Vaccines</i> , Philadelphia, WB Saunders Co. pp 362-371 (1988)
	C-63	Ott et al., in: <i>Vaccine Design: The Subunit & Adj. Approach</i> eds. Powell et al. pp. 277-295 1995
	C-64	Pearson et al., "Molecular Cloning of <i>Vibrio Cholera</i> Enterotoxin Genes in <i>Escherichia coli</i> K-12," <i>Proc. Natl. Acad. Sci. U.S.A.</i> <u>79</u> :2976-2980 (1982)
	C-65	Pickett, C.L. et al., "Genetics of Type IIa Heat-Labile Enterotoxin of <i>Escherichia coli</i> : Operon Fusions, Nucleotide Sequence, and Hybridization Studies," <i>J. Bacteriol.</i> <u>169</u> (11):5180-5187 (1987)
	C-66	Pierce et al., "Procholeraegenoid: A Safe and Effective Antigen for Oral Immunization Against Experimental Cholera," <i>Infection and Immunity</i> <u>40</u> (3):1112-1118 (1963)
	C-67	Pizza et al., "The Subunit S1 is Important for Pertussis Toxin Secretion," <i>J. Biol. Chem.</i> <u>265</u> (29):17759-17763 (1990)
	C-68	Pizza et al., "A genetically detoxified derivative of heat-labile <i>Escherichia coli</i> enterotoxin induces neutralizing antibodies against the A subunit," <i>J. Exp. Med.</i> <u>180</u> :2147-2153 (1994)
	C-69	Pronk et al., "Heat-Labile Enterotoxin of <i>Escherichia coli</i> ," <i>J. Biol. Chem.</i> <u>260</u> (25):13580-13587 (1985)
	C-70	Rappaport et al., "Development of Purified Cholera Toxoid I. Purification of Toxin," <i>Infect. Immun.</i> <u>9</u> (2):294-303 (1974)
	C-71	Rappuoli et al., "Structure and evolutionary aspects of ADP-ribosylating toxins," <i>Sourcebook of Bacterial Toxins</i> , Academic Press Limited, pp1-21 (1991)
57	C-72	Rappuoli et al., "Genetic Detoxification of Bacterial Toxins: A New Approach to Vaccine Development," <i>Inter. Arch. Allergy & Immunol.</i> <u>108</u> :327-333 (1995)

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In the Application of BARCHFELD et al.

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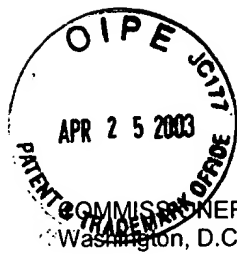
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SD	C-73	* Rappuoli et al., "Structure and Mucosal Adjuvanticity of Cholera and Escherichia coli Heat-Labile Enterotoxins," <i>Immunol. Today</i> <u>20</u> :493-500 (1999)
	C-74	* Roberts et al., "A mutant pertussis toxin molecule that lacks ADP-ribosyltransferase activity, PT-9K/129G, is an effective mucosal adjuvant for intranasally delivered proteins," <i>Infect. & Immun.</i> <u>63</u> :2100-2108 (1995)
	C-75	* Rodighiero et al., "Structural basis for the differential toxicity of cholera toxin and Escherichia coli heat-labile enterotoxin," <i>J. Biol. Chem.</i> <u>274</u> (7):3962-3969 (1999)
	C-76	* Sanchez, J. et al., "Recombinant Cholera Toxin B Subunit and Gene Fusion Proteins Oral Vaccination," <i>Res. Microbiol.</i> <u>141</u> :971-979 (1990)
	C-77	* Sandkvist et al., "Assembly of Escherichia coli Heat-labile Enterotoxin and its Secretion From <i>Vibrio Cholerae</i> ," <i>Molecular Mechanisms of Bacterial Virulence</i> , Chapter 21, pp 293-309 (1993)
	C-78	* Sixma, T.K. et al., "Crystal Structure of a Cholera Toxin-Related Heat-Labile Enterotoxin from <i>E. Coli</i> ," <i>Nature</i> <u>351</u> :371-377 (1991)
	C-79	* Spangler, "Structure and Function of Cholera Toxin and the Related <i>Escherichia coli</i> Heat-Labile Enterotoxin," <i>Microbiological Reviews</i> <u>56</u> (4):622-547 (1992)
	C-80	* Spicer, E.K. et al., " <i>Escherichia coli</i> Heat-Labile Enterotoxin," <i>The Journal of Biological Chemistry</i> <u>257</u> :5716-5721 (1982)
	C-81	* Spicer et al., "Sequence Homologies Between A Subunits of <i>Escherichia coli</i> and <i>Vibrio Cholerae</i> Enterotoxins," <i>Proc. Natl. Acad. Sci. U.S.A.</i> <u>78</u> (1):50-54 (1981)
	C-82	* Streatfield et al., "Intermolecular Interactions Between the A and B Subunits of Heat-Labile Enterotoxin from <i>Escherichia coli</i> Promote Holotoxin Assembly and Stability <i>in vivo</i> ," <i>Proc. Natl. Acad. Sci. U.S.A.</i> <u>89</u> :12140-12144 (1992)
	C-83	* Sultzer et al., "The Adjuvant Effect of Pertussis Endotoxin Protein in Modulating the Immune Response to Cholera toroid in Mice," Proceedings of the Fourth Intl. Symposium on Pertussis, Joint IABS/WHO Meeting, Geneva Switzerland, 1984 Develop. in biol. Stand. <u>61</u> :225-232 (1985)
SD	C-84	* Torres et al., " <i>Clostridium Difficile</i> Vaccine: Influence of Different Adjuvants and Routes of Immunization on Protective Immunity in Hamsters," <i>Vaccine Research</i> <u>5</u> (3):149-162 (1996)

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Exam. Init.	Ref. Desig.	Description
SD	C-85	Tsuji, T. et al., "Relationship Between a Low Toxicity of the Mutant A Subunit of Enterotoxigenic <i>Escherichia coli</i> Enterotoxin and its Strong Adjuvant Action," <i>Immunology</i> <u>90</u> :176-182 (1997)
	C-86	Vadolas et al., "Intranasal Immunization with Liposomes Induces Strong Mucosal Immune Responses in Mice," <i>Eur. J. Immunol.</i> <u>25</u> :969-975 (1995)
	C-87	Verweij et al., "Mucosal Immunoadjuvant Activity of Recombinant <i>Escherichia coli</i> Heat-Labile Enterotoxin and b Subunit: Induction of Systemic IgG and Secretory IgA Responses in Mice by Intranasal Immunization with Influenza Virus Surface Antigen," <i>Vaccine</i> <u>16</u> (20):2069-2076 (1998)
	C-89	Walker et al., "Use of Heat-Labile Toxin of Enterotoxigenic <i>Escherichia coli</i> to Facilitate Mucosal Immunization," <i>Vaccine Res.</i> <u>2</u> (1):1-10 (1993)
	C-90	Warren et al., "Current status of immunological adjuvants," <i>Ann. Rev. Immun.</i> <u>4</u> :369-388 (1986)
	C-91	Yamamoto et al., "Mutants in the ADP-Ribosyltransferase Cleft of Cholera Toxin Lack Diarrheagenicity but Retain Adjuvanticity," <i>J. Exp. Med.</i> <u>185</u> (7):1203-1210 (1997)
	C-92	Yamamoto, T. et al., "Primary Structure of Heat-Labile Enterotoxin Produced by <i>Escherichia coli</i> Pathogenic for Humans," <i>J. Biol. Chem.</i> <u>259</u> :5037-5044 (1984)
YSD	C-93	Zoller et al., "Oligonucleotide-Directed Mutagenesis Using M13-Derived Vectors: an Efficient and General Procedure for the Production of Point Mutations in any Fragment of DNA," <i>Nuc. Acid Res.</i> <u>10</u> (20):6487-6500 (1982)

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